

ABSTRACT

At least a pair of electrodes comprising
semiconductors or a semiconductor compounds are
arranged to be submerged in water or a liquid of a
5 hydrogen-containing organic compound. Applying pulse
electric power between the at least one pair of the
electrodes activates hydrogen atoms contained in the water
or the hydrogen-containing organic compound to produce
hydrogen gas. The hydrogen activating apparatus thus
10 constructed eliminates the necessity of doping electrolysis
or the like for improving an electric conductivity of the
water and allows production of hydrogen from materials
containing hydrogen atoms such as water and the
hydrogen-containing compound or the like with a low
15 energy.